

A 3D cutaway diagram of a particle accelerator, showing various internal components like magnets, beam pipes, and support structures in different colors (red, blue, green, yellow, orange).

A set of slides to seed the discussion of

# Simulation Schedule for pre-CDR/cost schedule review

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In discussion with Dave, Mike, Tony and many others

# Overview

- ▶ Balance between continuing development of sPHENIX software and result preparation for the coming review
  - Draft/place holder plots for pre-CDR, **end of Aug**
  - Final pre-CDR, **end of Sept**
  - Cost and Schedule Review Dry run, **early Oct.**
  - Cost and Schedule Review at BNL on **November 9 - 10**
- ▶ Proposed approach:
  - **Define a setup of reference** detector simulation / analysis software
    - This week: tag reference detector simulation code, start 1<sup>st</sup> production
    - End of month: tag a stable analysis software code for general analysis
  - Carry out at least one **official production**: especially for HIJING events in full calorimetry
  - Meanwhile, each **subsystem can continue their develop** on top of the reference design and have their own simulation studies

# Today's meeting

- ▶ Define the plan
- ▶ Agree on a new reference detector setup
  - Tracking:  
cylinder SVX tracker with outer radius to produce 100MeV Upsilon mass resolution?
  - EMCal:  
2-D projective SPACAL?
  - Updated magnet and support structures
  - HCal:  
Chris' new HCal design?

# By end week of This week

## tag simulation production code

- ▶ Pro Tagged the event generator
  - Do we need to tag a version of :
    - pythia8 for producing jet HEPMC
    - HIJING for background HEPMC files
- ▶ Pro Tagged software modules of
  - offline/framework
  - simulation/g4simulation/phhepmc
  - simulation/g4simulation/g4main
  - simulation/g4simulation/g4detectors
  - production macro
- ▶ Pro Tagged tracking detector in G4
  - SVX tracking experts converge on using cylinder based VTX for this round of production.
    - Standalone development on ladder implementation as lead by Tony
  - Separate study with TPC? Is the software ready?

# By end week of Aug 11 [continue]

## freeze and tag simulation production code

- ▶ Pro Tagged version of EMCal in G4
  - Jin will finalize the 2D projective SPACAL.
  - We need production data on both 1D and 2D projective SPACAL
- ▶ Pro Tagged version of HCal in G4
  - Is final geometry ready?
  - Field after-burner was committed yesterday
- ▶ Pro Tagged version of PHG4hits in G4
  - Chris fixed the hit ID
  - A few bug fix already submitted by Tony and Nils
- ▶ Build a production file catalog database?

# Weeks of Aug 17 to Aug 31

## simulation production

- ▶ Single particle in
  - reference design
  - reference design + 1D projective SPACAL
  - reference design + a combinations of HCal tilt angles
- ▶ Hijing in reference design
  - reference design
  - reference design + 1D projective SPACAL
- ▶ Upsilon, D meson in reference design
  - reference design
  - reference design + 1D projective SPACAL
- ▶ Detector specific production
- ▶ Revised production possible upon analysis of the first batch



# End of Aug and 1st week of Sept:

Tag of foundational analysis software and analysis of production data

- ▶ Freeze software modules of
  - simulation/g4simulation/g4cemc
  - simulation/g4simulation/g4hough
  - simulation/g4simulation/g4eval
  - simulation/g4simulation/g4jets
  - offline/packages/HelixHough
  - Standard macros to produce tracking and jets
- ▶ Provide a standard way for user to fetch following information from DST
  - Truth and standard detector Jets
  - Track with truth association
  - Calorimeter tower and cluster with truth association

# Sept - early Oct

- ▶ Producing and finalizing plots
- ▶ Additional production according to specific study need